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## *Academic Training In Architecture*

BY

HUGO FRANZ KUEHNE, C.E., B.S.,

Adjunct Professor of Architecture

The University of Texas.



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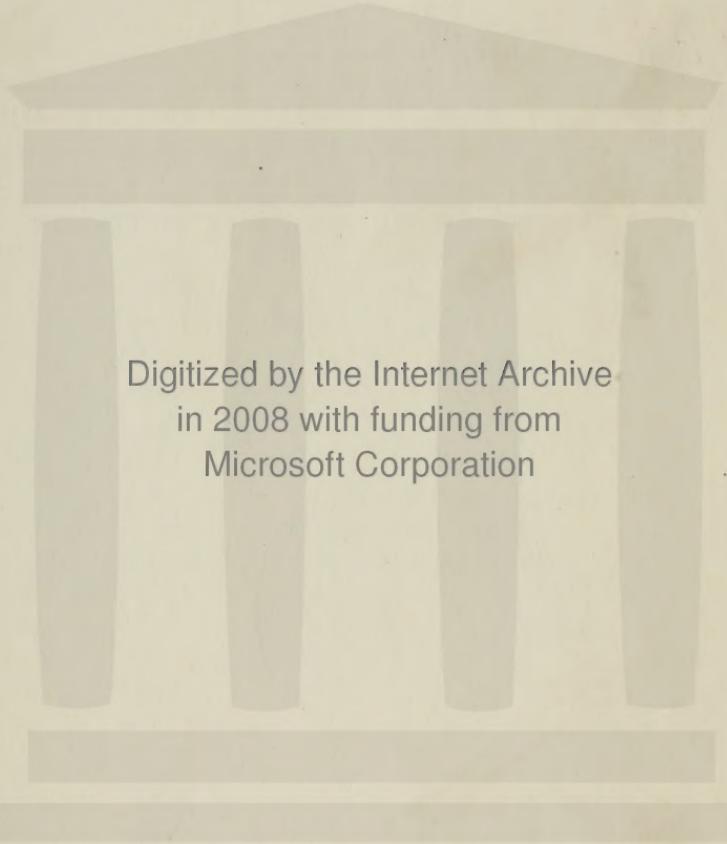
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## ACADEMIC TRAINING IN ARCHITECTURE

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In all fields of education, before we can determine methods we must first define our subject matter. In other words we must first have a definite knowledge of the essential nature of our subject matter; and a clear understanding of the proper attitude to assume toward it. This may seem a self-evident assertion; and it may justly be so concerning many of the sciences and professions. The majority of educated people have a quite definite conception of the nature of civil, electrical, mechanical, mining, and sanitary engineering, as well as medicine and law; and also a fairly clear idea about the attitude assumed toward these subjects by scholars, educators, and students. But it is extremely curious to note that there is a woeful lack of knowledge concerning the true nature and subject matter of architecture, not only by people of *average* education, but also people of higher culture. There is confusion not only as to the true nature of architecture, *per se*, but especially in regard to academic training in it. This is strange when we consider that architecture is the first art, the first science, the first evidence of civilization in the evolution of man. An art whose beginning dates back to the very genesis of civilization ought surely to be as familiar to every man as a science which is hardly a century old. For instance, consider the youth of the science of electrical engineering; who would say that it is shrouded in mystery, vouchsafed only to a few who practice it, as the sacred knowledge of the high priests, hidden away in the inner-most sanctuary of the temple!

Just why this lack of aesthetic appreciation and education in the history of the fine arts prevails is perhaps a problem for pedagogy or psychology to settle. It must, however, be borne in mind that its universality is not of equal degree. The older a community, the more marked is the development of general knowledge in this direction. It seems that only as we reach the highest planes of culture, do we realize that such knowledge is an essential part of a man's education. But in how many places do we find it touched upon in our schools and higher institutions

of learning? Not the slightest mention or attempt is made to teach the essentials and history of the most vital art—the art in which we live and move and have our being.

In a discussion of academic training in architecture it is particularly necessary first to define clearly its subject matter and its intrinsic nature. It is only when we are thoroughly clear on these points that we can proceed to establish intelligent methods of training. In the following pages an attempt will be made to give a satisfactory definition of architecture in accordance with the trend of modern thought, and then a discussion of methods of academic training based on this definition.

Before setting out to define the true nature of architecture it will be necessary, however, to dissociate in the mind the modern division of architecture into two professions, as contrasted with the original unity of the subject. In other words, within the past fifty years building has, in one phase, developed into an engineering science. There has been a marriage, so to speak, between building construction, or architecture in its narrowest sense, and civil engineering. If we turn to history and trace the development of architecture, we notice an original freedom from the pure sciences. Whatever pure science entered into Greek, Romanesque, Gothic, and even Renaissance architecture, was confined to the simple laws of masonry engineering, expressed in the principles of the arch, vault, and foundations, for which it is doubtful if any exact science existed. Construction was based on common sense rather than on elaborate formulae of graphics, statics, and mechanics. Through all the ages architecture possessed a unity and singularity of principle, which preserved its nature as a pure art.

However, with the advent of steel, armored concrete, the complex systems of heating and ventilating, electric lighting, plumbing, refrigerating, pneumatic tubes, elevators, and other accessories and conveniences of modern life, we find architecture assuming a much wider scope. Thus have arisen the professions of architectural engineering, heating and ventilating engineering, electric lighting and sanitary engineering of buildings, etc., etc. The modern hotel, perhaps, expresses the most complex outcome of this evolution.

The first of these, architectural engineering, is the most closely associated with architecture in its original state. The other me-

chanical phases have been divorced from the architectural profession and given over to specialties. We, therefore, have two kinds of architecture: viz., Pure Architecture and Architectural Engineering. These must not be confused, although the points of fusion and mutual absorption are many. Hence we find in all the catalogs of the larger institutions of learning two courses in the department of architecture, one of pure architecture and the other of architectural engineering, each fitting its men for special duties but still maintaining a close relationship between each other.

We are now prepared to attempt an answer to our first question, What is architecture, and what is the intrinsic nature of the subject matter of this expression of the human intellect? In turning back it will be noticed that the word *Art* was used synonymously with the word *Architecture*. True, architecture is an art, and we may even say that it is a *fine art*. Now the first question that arises is, Why is architecture a fine art?

Why are painting, sculpture, and music regarded as fine arts? The answer is the same for all. It is because they are the expression of the ethos, the soul-life, the inner nature of the individuals or nations that have produced them. They reflect individuality and character. They represent an attempt to re-create objectively the subjective. They are material interpretations of the emotions, impressions, and feelings that stir the human soul. Art thus becomes a language—a language of form, line, color, and sound, by means of which men's souls communicate with each other. Hence an art, as defined by Prof. Van Pelt, is the "intentional creation of a medium, whether of color, form, or tone, which is capable of producing the sentiments and impressions felt by the creator in those beholders who are capable of responding to such sentiments and impressions."

Now this should be true of every work of architecture, not for arbitrary reasons of sentiment, or because a particular class of human beings wish it so, but because such is really true of architecture in the past. It is not that we wish to impose it upon architecture as a necessary condition of perfection, but that we are simply continuing the work of ages, perpetuating those principles and essentials which we find common and fundamental in all the architecture of the great styles of the past. Thus, Egyptian architecture is unmistakably Egyptian. Greek and

Roman architecture are classical, yet that which developed in Greece is distinctly Greek, while that which is indigenous to Rome is characteristically Roman. Thus the Basilica of Constantine is incontrovertibly Roman although stripped of every vestige of ornament. Again, Japanese art is distinctly Japanese. Each of the foregoing reflects certain characteristics and intellectual developments of the race that produced them. This same truth is shown to a much finer degree in the Gothic and Renaissance periods, where the Italian differs from the French, and the English from the German. Architecture then, like the language of the race itself, has its individuality and distinctive character in each country. Even different sections of the same country will differ in their architectural expression, much as a different dialect may prevail in each. Of course material environment has its modifying influences, determining the materials of expression, but never changing the spirit of the race characteristics. In its highest expression it has always been most intimately associated with the expression of man's religious instinct. From the Pyramids to the Gothic cathedral, Religion has inspired the noblest and sublimest works of architecture. It is by this very element, in fact, this endeavor to express religious aspiration—the creation of a shrine worthy of bearing the image of a God—that architecture rose to the position of the highest art. And the character of the religion professed by different peoples at different times has always been reflected in their architecture. That is why Architecture is a fine art, in fact, perhaps the greatest of all the arts, for it may lay claim to priority in point of time, scope, and nearness to human life. Sculpture and painting may be considered after-developments, outgrowths, so to speak; and from the classic ages down to the present day certain branches of both sculpture and painting are among the essential manifestations of it. Thus, monuments, sculptured ornament, carving, decoration and mural painting, and colored ornamentation, are all a part of the subject matter of architecture.

And surely architecture is the most practical of all the arts. Its very origin is founded on a human need. It sprang from man's attempt to shelter himself from the external elements of nature. From the primitive cave dwelling it has in its various developments become the home, the haven of an awakening race;

or it has become the tabernacle of the devout where they may glorify the Lord and sing His praises; or it has become the tribunal of law where the conduct of individuals and of nations is regulated; or it has become the shelter of learning, the cradle of a new civilization. What, then, is nobler than this art which touches life at every point in all its activities and manifestations! Do we accord it the reverence, respect, and interest that are due it? Are we not guilty of an inappreciation of its importance and power in the development of human life? Should we not establish in it the highest standards that lie within our power? A painting or statue is hidden away in a museum, or in the case of the latter, perhaps erected in the open sunlight, yet only a small percentage of mankind behold either. But the work of architecture, like nature herself, stands forever beneath the free canopy of heaven, where age after age possess the stream of human life, even unto eternity. How much greater the value of perfection in this omnipresent art that is reflected in the eye of every human being. Should not these universal impressions created in our brains be of the noblest and highest? By their endless repetition they gradually mould the taste, sentiment, and culture of a people. True as it is that architecture is the expression of the ethos of a people, there is also a reflex action in its influence on the life of the people themselves. Through the constant association with the good and beautiful the standards of taste, refinement, and culture of the masses is raised to higher levels. Architecture, therefore, has a mission to perform. It is not only a fine art, but a living art, and by its life must raise mankind to higher planes, to the fullest expression of the divine that is within.

Numerous have been the definitions of architecture. Many are too absurd to consider seriously, the majority are inaccurate, fragmentary, and misleading. Now, the surest way to arrive at a satisfactory answer is to study the past, to study those creations of peoples whose ethos has been immortalised in their architecture, where their architecture was the highest development of their civilization. Thus to the Greek, the Roman, and the Gothic builders we must go. In studying their works we shall find certain qualities, attributes, or elements which are universal and predominant. What are these principles? A careful an-

alysis, I believe, will show them to be solidity or soundness of construction; a fitness of things, e. g. usefulness; individuality or expressiveness; and beauty or sincerity. Any accurate and logical definition must contain these fundamental principles. Now many of the definitions of the writers of the past include them all. Ruskin in his "Seven Lamps of Architecture" says, "Architecture is the art which so disposes and adorns the edifices raised by man for whatever purposes, that the sight of them may contribute to his mental health, power, and pleasure." Manifestly this is only a plea for outward show. Again we have the definition that "Architecture is the art of building, planning, and decorating buildings." This is likewise inaccurate and incomplete. Better, however, is Prof. Hamlin's definition: "Architecture is the art that seeks to harmonize in a building the requirements of utility and beauty." Here we find a recognition that the architect is more than a mere decorator and dress-maker. The chief merit of the foregoing definition, however, lies in the fact that it makes beauty tantamount to usefulness. It proclaims beauty to be co-essential with the other qualities, which is very important; for right here most definitions fail, as it is an almost universal idea that beauty is a thing apart, a quality which buildings can do without. "Instead of proclaiming the importance of beauty, its independence almost, they have reduced it to being simply the accompaniment of the useful. They have designed as a pure accessory of construction that part of it which is the most subtle, the most illustrious, the most elevated, the most rare. Such is not the definition of architecture for those who esteem this art at its value, sometimes sublime, sometimes beautiful, sometimes graceful, but always dignified, always associated with the grandeur of nations and with their glory."<sup>\*</sup>

But have we so far reached a complete definition? What has been said of the principles of soundness, solidity, and expression? Where has that element of personality, individuality, and of responsibility been recognized? Light is thrown on these matters by Professor Laird's definition of an architect. "Thus we regard the architect as the creator of buildings with a three-fold function: he must so shape and assemble the parts of his struc-

\*Charles Blanc, "Grammaire des Arts du Dessin." Translation. Technology Architectural Record, Vol. 1.

ture as to produce a convenient, logical working organism, fitted to certain practical uses. He must give to these parts severally, and to their ensemble, good proportions and color, suitable ornament and a final effect of character and sentiment appropriate to the special purpose of the building; and while doing these things he must keep constantly in mind the nature of his building materials and their possibilities and limitations to the end that his building may be sound and economical in construction." Summing up these principles we may formulate the following definition: Architecture is the art of *conceiving* and *creating* buildings which are to serve the *uses of mankind* in the most *beautiful, durable, and expressive form*.

A few words more of amplification before we proceed to our next question. We note in the first place that the fullest responsibility of the architect for the finished product and its permanency is recognized. Just as a painting, or a piece of sculpture, or a symphony is the creation and product of the brain and the imagination of the artist and musician, even so is a building ultimately the creation and product of the mind of the architect, although the result may have been attained by the co-operation and collaboration of contractor, engineer, and specialist. The original conception, however, and the final carrying out of it are beyond doubt a fragment of the genius of the architect. This is but fulfilling the first law that architecture is a fine art. Individuality and character enter here, two of the first canons of art, whereby the work of one architect may be distinguished from that of another. A Rembrandt needs no signature to identify it; a sculpture of Rodin needs no inscription; a Wagnerian opera needs no announcement to be recognized; likewise a building of Palladio, of Michael Angelo, of Richardson needs no tablet to proclaim its authorship. Sometimes this individuality becomes a spirit common to a group of men, or a community, or a nation. This is illustrated in modern times by the firm of McKim, Meade, and White, where a spirit of classicism was born and preserved and individualized, even though the original members of the firm have passed away. It is here that the ethos of the individual is expressed. Each design is a very part of himself, imbued with the spirit of his own emotional, spiritual, and intellectual life. The delicacy and refinement of

his sentiment, the loftiness of his ideals, the sincerity of his intellect will in his work be exhibited to the world.

Another thing we note in the foregoing definition is the recognition that architecture has a living quality—a living purpose, e. g., an element of service and security. Of what avail is the work of art if it live but a day? Of what value is it if its integrity be false? Who does not experience a secret sense of disappointment in the contemplation of the Dome of St. Peters? To know that its capacity to stand as a glorious culmination of the Italian Renaissance and of Rome, depends upon the sustaining bonds of massive chains hidden away in its fabric, mars its artistic nobility and impresses it with failure as a true work of art. And where is the glory of the Campanile of Venice? How much longer will the Tower of Pisa charm the traveler? Do they rise to the full measure of perfection that we set for true art? Beauty which does not frankly and sincerely sustain itself is false beauty, like paint upon a girl's cheek. And from the humanitarian standpoint those edifices erected by man which are not safe surely stand condemned as menaces to human life. So where service to the practical need of humanity is the paramount consideration the works of architecture must be sound, permanent, and protective of human life. And where these works are purely for the edification of our minds and souls, such as our monuments, they should be lasting and eternal, even as the great Pyramids of Ghizeh are eternal.

Again we notice that due importance is given to the element of utility, which in the complexity of our modern life becomes one of the most difficult problems. It is a most disturbing and treacherous quality, for how often is a cherished conception blasted by the rigor of its demands? It becomes a factor whose tendency is to neutralize the results obtained by the other elements. However, it is the very backbone of the architectural organism. It becomes the altar where art and science unite, often to the detriment of the former. We are often forced to sacrifice consideration of beauty for considerations of usefulness. But a reconciliation may be sought in the element of logic. Whatever is logical is good. "*Le raisonnement, c'est la base de l'Architecture.*" If whatever we do is reasonable and natural, we may feel fairly safe that our work will merit the name of art.

It is in satisfying this quality that the architect must call in the aid of the engineer, specialist, and scientist. But it is in mastering this difficulty, and producing the most harmonious and beautiful whole, whatever the exigencies of the problem, that the glory of modern architecture lies. It is here that superiority of genius will assert itself.

Lastly, we come to that quality which is the most illusive and rare of all. It is a quality that results from the fact that to be a fine art, architecture must express those first laws of aesthetics designated as Truth and Sincerity. These imply a fitness of things, an integrity of expression that will leave no doubt in the mind of the beholder as to the purpose of the work. Deception, fraud, and hypocrisy, all imitations and false pretensions, convict a work of architecture of immorality and spiritual degeneracy. Therefore a work of architecture should be so created that it will sincerely and truthfully express its purpose as well as its construction and material. Thus a church should say, "I am a church;" and a school should say, "I am a school;" and a theater should proclaim that it is a theater. A recent English writer, Mr. Statham, very clearly recognizes this point when he says that architecture "is the art of creating expressive and beautiful buildings." This emphasises the idea of expression and is given as his reason for placing it first. Again Mr. Lloyd Warren shows how strongly this element has manifested itself in the thought and practice of French architects. We find them "searching to express their interior plan in every way on the exterior, and even their manner of construction \*\*\* and moreover at any cost stamping their building with the character of its use." This is exemplified in the Grand Palais in Paris, where the steel work is left exposed and itself made ornamental. And in buildings of commercial character we find an example in the Rue de Rennes, where the structural steel is frankly shown on the exterior. This would violate *our* building law of fire proofing, but the spirit of expression is there, which is the point I wish to illustrate. The question of this particular form of expression is foreign to our subject. The important thing is that there be *some* form of expression, and it is herein that the genius of the architect manifests itself. This expression of the uses of a building on the exterior by the arrangement of masses and lines, color, structural form, the application of ornament

and decoration, the infusion of feeling and sentiment into the composition, this is the greatest task of the imagination and inventive ability of the architect. Success in these things was the mark of greatness in the old masters.

We may now proceed to a consideration of the second question. What should be the academic attitude toward this art, and of what should the academic training of the architect consist?

At the outset there are two considerations which we must not forget: First, we are dealing with the pedagogy of a fine art; and, secondly, we are dealing with a training that has developed into such complexity and comprehensiveness that it has become the broadest and widest of all professional education.

The teaching of a fine art leads us into a field of pedagogy with a distinct and characteristic nature. Methods in vogue in other fields of education do not apply here, with the result that we either have to modify them or establish new ones. This is true because art is an intangible something, not expressible in the form of laws, rules, formulae, or tables and codes. It is a *feeling*. Now this phase of the human intellect—that is, art considered subjectively, not the external concrete products, may be analysed into two manifestations. On the one hand we have that part which is psychic, and on the other that part which is physical. The one we may call *genius*, the other *talent*. The first consists of an abnormal development of certain powers or faculties of the intellect. It is the innate capacity for an unusually strong and keen mental-life and soul-life—a capacity for intense imagery, emotion, and reason. In a broader sense, it is preternatural endowment of uncommon powers of invention or vigor of intellect or a superiority of mentality in some one direction. Genius is therefore inborn, an inheritance. It may, however, remain merely dormant and nascent and may never find expression in the life of the individual so endowed.

In our present case genius would be the innate capacity of intense imagination, profundity of conception, easy creative ability, and acute power of analysis. Furthermore, genius would here imply a deep soul-life, a highly developed sensibility for emotion and feeling, and a power of understanding the highest pinnacles of ecstasy and the lowest depths of despair. All these things are within, a part of the soul or mind. Now, it

is the object of art training to bring these things out, to unfold them to the world, to develop them and guide them to the fullest possibility of expression. This leads us to that second phase which we call *talent*. Talent, therefore, becomes the power or capacity for expression and execution. It is the power in the individual which enables him to impart his inner mental, spiritual, and emotional life to the outer world. Genius is the inner life of feeling and thought, while talent is the vehicle for conveying this life to the world, or in other words *technique*. There may be individuals endowed with all the intensity of feeling and emotion, individuals who have a vivid consciousness of what they know, or think or feel, but who must remain forever mute because of the lack of the power to express this consciousness. I believe, however, that such individuals if taken in early life and given the proper training can develop a power of expression. On the other hand, a person may possess wonderful technique and yet never rise to the rank of a true artist, for the possession of the psychic element is the essential thing. This is especially true of architecture. Given the psychic, the physical will follow later if given the proper encouragement and stimulus. In other words, talent or the power of expression and execution is not necessarily an innate inherited quality, nor is a natural gift therein prerequisite for success. What is prerequisite, is the innate dormant genius, the existence of an undeveloped capacity. The object of the foregoing is to correct the general belief that an inborn talent is necessary for achievement in art.

It is the function of academic training to find the spark of genius and to nourish and develop it, so that it may grow into an intense fire whose light will reach far and wide over the earth and through time. Fortunately we find that either one or both may be already highly developed in the individual during adolescence, or we may find them developed to various extents in all stages of the life of the individual. Of course the early development of those is of immense advantage, and progress is greatly accelerated in such a case. Evidences of genius are usually found at an early stage, while talent may not show itself until late in life. In other words the psychic may be merely definitely existant, or it may be developed long before the physical power of expression manifests itself. We need only point to Israels to illustrate this.

Here was an artist who for thirty years of his life was a complete failure at technique and expression, but who gradually found himself and in the winter of his life produced his greatest works. And thus there are many who in the beginning of the study seem utterly impossible but afterwards develop into masters. "Not each one of us, it is true," says Prof. Van Pelt, "has the artistic spirit in the same degree; but if we are glad to do what we are doing, an early inability to do it well should not disturb us. Some artists, often the greatest develop but slowly; and the truly artistic nature, in its embryonic stage, is evidenced more by the love of art, coupled with innate delicacy of temperament, refinement, and strength of character, than by the clever brush or pencil stroke we are tempted to accept as its index."

How is academic training going to develop this hidden power, to quicken the embers of genius until they blaze forth in full glory? How is it going to help the aspirant to acquire talent to express this quickened flame? There is obviously no dispensary of such things where the student can go and fill himself. But whatever the means, we at least know the result desired. With the given potentiality of genius, it is the function of such training to bring out and develop the creative faculty, the imagination, the powers of expression or technique, and the subtler quality—the artistic spirit. Now it may seem a paradox but it is nevertheless true, that this development must come from within. It must be self-cultivated, absorbed, and inspired. It must be borne in mind, that in teaching a fine art, we are dealing with a spirit, a feeling so to speak, and not a concrete organization of facts, laws, and formulae, and that therefore the student cannot acquire artistic proficiency through the reading of a definite number of books, or by learning a definite number of facts and rules, or by working a certain number of problems; but he acquires his ability through the awakening of the nucleus within him and the gradual growth of the nascent powers with which he is endowed. This must be accomplished through guidance by superiors; faith in their standards, in their precepts, in their taste, and ideas; and along with this must go a respect and reverence for the master; through criticism and study of precedent, and the lives and work of others; and through inspiration. All that the master can do for the student is to guide and lead and

inspire; the work itself must be done by the student himself. This, then, is the fundamental principle in the teaching of this subject, and this is what academic training means. To illustrate this point let us take the matter of charcoal drawing from a plaster cast or the human figure. The most that an instructor can do is to tell the student what *not to do*, and perhaps by actual demonstration show how best to attain certain results. Individuality, character, and style he cannot transmit to the student. He may draw the figure until doom's day, or discourse himself out of voice on the principles of freehand drawing, and in the end leave the student not a whit better off than before. Achievement must come from within: the student must draw the thing over and over again himself, perhaps in the end awakening to the realization of a single truth. Mastery comes through himself, and so he must work away and persevere with patience, always thinking for himself.

This is the essential idea in all art training. It is clear, therefore, that our methods will be somewhat different from those in other branches of education, and that a characteristic environment for the student is necessary. The matter of environment I shall discuss later.

We now come to the second consideration, that of the range of architectural training. According to Prof. Warren P. Laird, "The scope of the architect's work today ranges from pure art to pure science. It requires a sympathetic understanding of the technique on the one hand of engineering—structural, sanitary, electrical and mechanical—and on the other of sculpture and painting, whose works are most notable when conjoined with those of the architect. His duties bring him into direct and responsible contact with business questions of investment and with problems of design based purely on sentiment. He is expected to be expert: as an artist, in design; as an engineer, in construction; as an administrator in the practical execution and legal protection of his client's affairs. He must know how to design not only buildings, but bridges; not only gardens but cities. He must solve problems ranging from church to factory, from commemorative monuments to caisson foundations." President Eliot emphasized the broadness of architectural training in his statement that the training of an architect was far wider in its scope than that of the lawyer, the engineer, and the physi-

cian. Now it would seem that such versatility and profoundness were beyond the power of a single individual. But here again we need not be discouraged, for we need only point back to the masters of the Italian Renaissance. If we should confess alarm it would be a sad comment upon our present civilization; in fact, it would be a declaration of retrogression instead of advancement in our intellectual and cultural evolution. Consider the powers of such men as Perruzzi, Michael Angelo, Vasari, Palladio, and Da Vinci. Some there were in whom were combined Painter, Sculptor, Architect, Man of Letters, and Scientist, and of all of them it was true that they were proficient in two or three arts. The question now arises, is it possible for an academic training, in the time usually allotted, to educate the student in all the ramifications of the field? In the words of Prof. Laird: "Manifestly then we must teach fundamentals: must lay a broad and firm foundation for the superstructure of the student's later career. But it is equally manifest that he must be developed as an individual, for the strength and resources of his personality will be the measure of his success as an architect, quite as truly as it determines that of the artist in other fields." This must, in fact, be the aim of all professional training.

What, then, will our course consist of? What are the fundamentals that we must inculcate? From the foregoing it will be seen that architectural training may naturally be divided into four great groups of study. First, there is the study of technique or expression, requiring the training of the hand, eye, and delicate perception: second, there is the study of composition and design, requiring the training of the imagination and reason; third, there is the study of the wide field of history and archaeology, which will develop taste, refinement, and culture; and fourth, there is the study of the practical side of the profession, including construction and practice, which will enable the architect to plant the flowers of his genius. Now it is fundamentals in each of these that academic training aims at. Let us discuss them in order.

### 1. Technique

Technique or the power of expression and execution, which we have defined as talent—in the present case architectural tal-

ent—is one of the first things to cultivate in our training. Upon proficiency therein rests in a large measure the future success of the student. But it is an accomplishment which cannot be taught in the usual sense of the word. It is something that cannot be instilled or infused into the student. In teaching it we must have recourse to the negative method. The most that can be done is to show what not to do, what to avoid, and to explain the result consequent upon the use of certain methods and artifices. Proficiency comes through the students artistic instinct. It must be achieved through personal interest in the work, through constant effort, through indomitable perseverance and everlasting practice. There is little difference in learning how to draw and how to play some musical instrument. An early manifestation of talent, of course, is an acceleration, but even those who for half of their lives are failures may yet in the end through the divine gift of patience reach the coveted goal. The importance of the ability of expression cannot be over-estimated. The power of technique, the flexibility and delicacy of touch, the keenness of the perceptive faculty, and rapidity of execution are of incalculable value in the mastery of composition and design. Aside from this there is a purely psychological value in such a capacity, in that it opens up new worlds of enjoyment and pleasure. The reason why the universally accepted monuments of the past are beautiful becomes apparent, and in each one there is opened a source of infinite delight and interest. Who can truly appreciate the beauty of the Venus de Melos who has not made a charcoal drawing of her? The wonderful subtlety, simplicity, and expressiveness of her partial drapery, the exquisite modeling of her figure, the beauty of her face, and the gentle, expressive, and graceful curves in her pose all become living passions, and she becomes a source of the keenest enjoyment.

But it is the influence of technique upon the capacity for design that should be emphasized here. A peculiar relationship seems to exist between the two. They are not necessarily correlative, for one can exist without the other; but a combination of the two is productive of the greatest achievement. In other words, students who are proficient in technique are usually the best designers. Still there are many designers who are not clever draughtsmen. However, with the power to draw easily and rap-

idly, there seems to come a freer flowing of ideas and an acuter appreciation of proportion in form and line. As the pencil glides over the paper with freedom, vigor, and decisiveness, there seems to grow out of the mass of lines new forms as if by their own free will. The power of technique has, therefore, besides the immediate effect of proficiency of expression, the further effect of stimulating the capacity of design. This power can be acquired by several means. First and foremost is freehand drawing, consisting of charcoal and pencil or ink drawing from the cast and the living model. The value of the latter cannot be overstressed. In the human body we find the most wonderful contrasts, the nicest distinctions of line, form, and mass, the most delicate refinements of proportion and the most beautiful exemplification of the laws of symmetry, the keen perception of which will sooner or later develop the student's refinement of taste. In his charcoal drawings the student at once learns the fundamental principles of study and methods of attack which hold true in all his subsequent work. The very first thing he must learn to grasp is the absolute importance of striking for the large things, the whole, the ensemble, before consideration is given to component parts and details. This is really the backbone of the whole system of study, and can be applied to all the activities of life. When the primary masses have been established, secondary and tertiary masses and details follow with the greatest ease. Another excellent medium is continuous practice in pen and pencil rendering. This will develop delicacy of touch, appreciation of values both harmonized and contrasted, and a true feeling for light and shade. For the appreciation of the harmonies and contrasts of color, the beautiful tints and shades of nature, and refinement in the use of colored materials nothing is better than a continuous practice in water color painting. Besides giving facility in the handling of the brush, which is of value in the presentation of designs, it develops a love for nature, an enjoyment for her unrivaled beauties, and leads to the realization of the fact that she is the supreme master in all art, to whom all must sooner or later turn for instruction, guidance, and inspiration. Furthermore, practice in architectural drawing, that is, drawing of the masterpieces of the past, the rendering of architectural forms such as the orders, the drawing of ornament of different styles will develop refinement in taste, an

appreciation of proportion and form, and a love for fitness and sincerity. Again, clay modeling is of great value in the appreciation of the third dimension in all the forms that have been presented only in the plane of the paper. A sense of mass and solid form, and the play of light and shade in sculptural ornament will be created by this means. Lastly the study of perspective will be found an excellent and really indispensable aid in the study of design. Commercially it is of value, as the client can usually best comprehend the presentation of a design in this way. Apart from this, perspective will teach the importance of a constant consideration of the third dimension in making designs on paper. It will help to enlarge the mind to a proper mental visualization of an object in its completeness, from all points of vision. It is a peculiar psychological fact that some minds are not able to create a solid image of an object in their consciousness, to see a thing inside and outside at the same time, so to speak. Training along this line is therefore very important through descriptive geometry and perspective. As a result, when making a plan the student will in his mind see all the elevations and interiors and will really work the thing as a concrete solid instead of merely in the plane of the paper. This is a point which is too often overlooked, and there result designs which look exceedingly well in elevation or plan but which fail entirely when seen from an angle.

The foregoing merely suggests the ulterior beneficial effects of these various mediums of technique, each naturally having its value as an end in itself. We all admire beautiful charcoal, renderings, and watercolors, for their own sakes aside from the subjects they convey. As the sum total of all the mediate and immediate effects of these means of expression are of the most far-reaching significance, no academic training in architecture is complete without a thorough grounding in the fundamentals of each one.

## 2. Composition and Design

Design is the main thing in academic architectural training. All other studies are essentially a preparation for and complement to it. The teaching of design is the true *raison d'être* of our architectural schools. This is the one thing in which a

man cannot be self-taught. All other technical studies might be acquired outside of the school in practical experience, or through self-teaching, but in the matter of design the school finds its real function. And this function is, through the course in design, to develop the genius of the student to the fullest possible extent. And furthermore the chief factor in this function is to teach the student how to study. Study is the *sine qua non* of design, as experimental investigation is of the positive sciences. The study of design should therefore begin early and the greatest amount of time should be devoted to it, for it is the purpose of our schools to make designers first of all.

What then is the nature of this "composition and design" which forms the central motive of our training? First it may be said that there is no essential difference between architectural design and design in any of the other fine arts. Design is the conscious creation of a complete whole, composed of one or more interdependent parts, while composition is the harmonious correlation of these different parts to form the individualised and unified whole. According to G. Baldwin Brown, "It is the first essential in a work of art that it should present itself as a unity, and not a mere formless mass of indefinite extension." This is equally true of architectural design. The architectural designer having at his disposal all the fruits of the genius of 10,000 years, besides the right storehouse of nature herself, must create his work out of this heritage and must if possible add to it new material, a new flower of his own genius. Thus it is the creative faculty, the power of assimilation and co-ordination, the gift to invent new forms, that must be developed and stimulated by academic training in design. In the words of Prof. Laird, "The central purpose in the course of instruction is the development of the creative power, for the architect's function has been well summarized as that of a 'designer of buildings,' and as such he must have wide resources of knowledge and talent. In this, its right sense, the term 'design' applies to the creating of the building, not to the decorating of its parts, and means the undertaking of a complete work of architecture. In other words design is the assembling into beautiful, convenient, and enduring form all the elements that go to make up a building."

Simultaneous with the development of the creative and inventive faculty there must be sound and thorough training in

the principles of aesthetics and theory of architecture. The student must have a knowledge and conviction of the laws of the good and beautiful which have been true from antiquity to the present day; for, however much styles and fashions may change, there are underlying truths that remain eternal, being founded on human nature and having their origin in the background of our consciousness. Instruction in the theory of architecture should be given early, perhaps best at the same time when the study of design itself is taken up.

Granting these prerequisites, how are we to proceed to acquire them? The natural beginning will be the study and appreciation of the best that has been done in the past. Perhaps the most efficacious is the study of classical work. No people have yet excelled the Greeks in the matter of architecture from an aesthetic standpoint. A careful study of the classical monuments will, therefore, result in the development of all those qualities that are essentials for a true artistic spirit. Care must be taken that there is no slavish copying of precedent, or an orthodox memorising of the orders, as if their proportions and divisions were immutable. This training should be in the spirit of research and analysis. The idea that a thorough study of Vignola will make an architect is utterly false, and as for that, any doctrinaire methods of teaching styles and forms should be condemned. The paramount value of studying the forms of the classic ages lies in their influence upon the mind, taste, and imagination. Parallel with this study should go careful instruction in the elements of architecture. They are, after all, few and simple, and a thorough understanding of their significance will lay a solid ground work for the future development of the student.

With such a foundation the student is prepared to build his superstructure of design. What then is to be the nature of his training from this point? Evidently if the training given in the school is to fit the student for service in after life in the practice of his profession, such training must be of a nature to develop his mind to meet successfully the conditions that arise in practical life. We must therefore approach in our academic training as nearly as possible the conditions that exist in practice. Now it is universally and invariably true in actual practice

that the architect is forced to face a problem of compromise. The cross that he has to bear is to try to get the best solution of a problem in spite of the adverse conditions and limitations which often make it necessary for him to throw away what would be the most logical and most aesthetic solution. The academic training should therefore prepare the student for such experience. Fortunately this precise condition can be obtained in the school by the program and sketch system of teaching design. This is the method employed in the Ecole des Beaux Arts, in Paris, which is the chief source of inspiration in academic architectural training. The influence of this school is being felt throughout the world. Its spirit and principles are being adopted in all the leading architectural schools of our country. Experience has shown the efficiency of its methods. Only very recently one of the largest institutions of this country was forced to accept its maternal dicta. To illustrate what the method of teaching design there is, I can do no better than quote from an article by Mr. John G. Howard.

"The instruction in architectural design is given \* \* \* in connection with programs issued at regular intervals throughout the year. \* \* \* The programs are composed and issued by the professor of the Theory of Architecture. They are distributed among the students, one to each, on a certain specified day, as he goes to his private loge in the examination room. Each student, in order to render his project, is required to make, during the twelve hours he passes in the loges, a sketch indicating with sufficient clearness the treatment in plan, section and elevation, which he proposes to adopt in the solution of the problem before him. The subject of the program is, of course, unknown until the papers are distributed on the morning of the exercise, which virtually amounts to an informal examination. The students are therefore thrown wholly on their own resources in attacking the problem. They are forced to use their wits, their imagination, their reasoning powers. On their success in solving, in a large way—of course not in detail—the difficulties of the problems presented, the value of the following two months' labor largely depends, for the principle is rigorously upheld that, primarily, the integrity of a work of art must be based on the first idea, the conception. If that be

wrong or poor, the finished work must inevitably be wrong or poor, no matter how elaborately worked out and presented it may be. Poverty of conception is never to be condoned by brilliancy of execution. \* \* \* This faculty, like any other, is capable of being trained only by exercise, constant and severe.

"On leaving his loge, the student deposits his sketch in the hands of a guardian, retaining a copy for reference in working up his design. Within a day or two he submits his sketch, at the same time with his comrades, to the master, whose word of approval or disapproval is awaited with keenest anxiety. Here, almost immediately after the exercise of his independent powers, the lad is brought face to face with a superior judgment, mature and disinterested, on which he has learned faithfully to rely. The defects of his conception are carefully pointed out to him, as well as its possibilities of development, and the general direction in which it is desirable to push. Above all the *parti*—that is, the general scheme—in and for itself, as a solution, is sharply criticised. \* \* \*

"As the weeks go on the student, in consultation with the library, his more advanced comrades, and the master, makes study after study, searching now here, now there, first in one direction, then in another, for the improvement in his design. Completed studies, sometimes in pencil, sometimes in pen and ink, and again in water-color, are made first at a small scale, and afterwards as the masses are found at larger size in order to fix the detail. During this time the 'character' of the design is sought with the greatest care. No labor is too great in order to arrive at the nearest possible approach to the ideal characterization of each special problem, and each part of that problem. \* \* \*

"Of the two months allowed for a problem in design fully six weeks, often more, are devoted to studying of the scheme, with all the assistance which is at the student's disposal. Rarely more than two weeks, often much less, are given up at the end to rendering—which is to say, to drawing out carefully on Whatman paper, casting shadows and washing in water-color the net results of the prolonged period of study. \* \* \*

"The final act of the drama is a lecture by the professor of theory—who originally made up the program—in which he

expounds the meaning of the judgment, the reasons which weighed in the decision, the character of the exhibition as a whole, sometimes the criticism of individual designs—in a word, a general summing up and rehearsal of the entire episode."

Now, an exact copy of this method is practically impossible in our schools, with the exception of those in our largest cities. What we must do is to adapt it to our new conditions and environment. Instead of the atelier scheme we have the class room. *En loge* problems, however, are within the possibility of our schools. But the general instruction in design must be given in the class room or aleoved drawing room. It must be taught through individual instruction and criticism. The program system must at all events be the central thought of the course, and the method of solution by preliminary sketches with a logical adherence to them in the final working up may be carried on precisely as it is at the Ecole des Beaux Arts. There must be developed in the class room the same *esprit de corps* and inspiring artistic atmosphere which will enthrall and conquer the student as soon as he begins study therein. This spirit alone is enough to develop the latent impulses in the student.

What, then, is to be the nature of this instruction in design in the class room? Artists can not be made to order there, nor can students be shown how to design in the usual sense of the word. This again must come from within. In the words of Professor Paul Cret: "It has been said that designers are born, not made. The same thing has been said about almost every calling in life, from poets to cooks, and it is true with this restriction, that inborn talent is but a factor of artistic superiority. \* \* \* The most gifted have had to work as much, and more, than others to develop their talent, and in this particular case with which we are occupied, I should say that the main difference between the good designer and the poor one is that the one has the possibilities and the willingness to study a longer time than the other. It is the importance of *study* that we find the foundation of design. \* \* \* We see at once that superiority in design is mostly to know *how* to study, that is to say, to give form to an idea, to make it construetible, and to improve it by

good proportions." Therefore, all that can be done in the short time allotted for the study of design in our schools is to show the student how to study a problem, at the same time pointing out the things to avoid, criticising the work that has been done, showing how it might be improved and what methods to pursue in order to carry it to its logical end. Logic and rationality must be taught as cardinal virtues in all design.

The central idea in the method of study is here again, as in charcoal drawing, and in fact in all activities of life, the searching for the big things first, and when these have been found to give consideration to the smaller things. In other words, whatever the subject of study may be, it is to define the whole first, and then its component parts. It is the main masses that the student must establish first, and when he has studied these the matter of subdivisions and details will follow easily. Thus in designing a triumphal arch, instead of spending days in worrying and searching for ornament or sculptural decoration to apply to its various parts, the essential thing is first to study its mass as a whole, to adjust the relation of the archway in size to the piers at its side and to the mass overhead, and at the same time to refine the proportions of these individually. Whether there be detached columns on the piers, tablets or figures in the attic, medallions or sculptural groups flanking the archway—these are entirely secondary considerations, and should be the last things to define if the arch is to be one of graceful, monumental, and pleasing proportions, and of the arch it may be said that its beauty lies in its proportions. Now, as a means to compel the student to forget details at the beginning and to make him study his problem as a whole first, he must be trained to make small sketches and mentally to visualize his design. In a thumb-nail sketch obviously details can not appear, and only the general mass can be indicated. But it is just in the defining of the general mass, out of which the complex building is to grow through the aid of the more or less completely visualized image in the mind of the designer, that the greatest success in the end depends. If possible, students should be exercised in maturing a design in their mind before transferring it to paper. The *en cloge* scheme for solving the program results in a great measure in this sort of training. But where such is not possible, the best

the student can do is to read the program and then conceive his scheme or *parti* entirely in his mind without reference to library or aught else. Thus the true individuality of the student will assert itself, and his mind will be developed to the point where he will grasp for essentials and big things first and forget the smaller things until he is ready for them.

There is another important question in connection with the teaching of design. This is the question of style and archaeology. We live in an age that has so far produced no characteristic style in architecture. What we find about us is really an architectural museum of styles and forms of past ages. Here and there we find attempts to break away from traditions and precedents, but no verdict has yet been passed upon their enduring and artistic validity. Such, perhaps, is the Art Nouveau movement, but it is still too early to pass judgment upon it.

What is to be our intellectual attitude toward this condition of our time? Are we to teach the re-creation of archaeological types or a copying of past examples? Are we to forget that the conditions of life then and now are utterly different? I believe the answer will unanimously be negative. The irresponsible copying of the styles of the past regardless of their adaptability to present conditions indicates a lamentable pauperism, intellectually, artistically, and even morally. The question, however, is a delicate one, and just where to draw the line is difficult to determine. That it is best to omit the teaching of styles in connection with design is no doubt true. There is great danger in having the students design their problems in specific historic styles, having a tendency to stifle originality, individuality and personality. To illustrate this point I shall quote Professor Cret again: "The purpose of this teaching and its aim should be to make the student work his own solution on a program selected as much as possible from among those that he may be called upon some day to build, or of whom he can see some solution in the city where he lives. The program once given, the pupil must be confirmed in the idea that he is not to be expected to make a facade like such or such a monument, a plan like such or such other, but he is simply to comply with the conditions of the program given. It may happen, and often does happen, that the solution which he finds resembles one of the historic types, and

this is not surprising, for the number of types is limited. If, then, the professor shows his pupils documents pertaining to these buildings, points out the ingenuity spent by others in the solution of a similar problem, the difference between the historic type and the one called for by the program, on account of modern conditions and customs, all this is excellent, and it is well within the function of the teacher.

"But this is not 'taking an attitude toward such or such style,' other than this: the teacher will have to make the pupil notice that the masterpieces of the past are not adapted to our needs, if they are still acceptable to our taste, educated by modern culture to our appreciation, if not worship, of archaeology. He will have to point out the difficulty 'of putting new wine in old skins,' for this is the great dilemma of the modern architect. We are taught to love and admire the forms of the past, but our needs and manners of life call for other forms."

This, then, should be the academic attitude. The student must be taught that reason and logic are the foundation stones of architecture, and that the great problem before him is to express his own individuality and ethos, as well as reflect that of his race and time in the creations of his imagination and reason, which are to serve the needs of humanity in the simplest, truest and soundest ways. In his work he should at all times be guided by a pure conscience and high moral ideal. Of course, it must be understood that a complete renunciation of the past is impossible and impracticable, for the majority of its forms are the logical expression of the fundamental and eternal laws of life and material facts. These forms are the vocabulary of our art, our working material: just as the notes and musical forms are the working materials of the musician. The student of architectural design must do with these what the musician does with his. No true composer has deliberately copied the work of a predecessor, although he may now and then have used the same themes, but developed them in his own original way. So then we are to use old forms and schemes only when they logically lend themselves to the requirements of present day conditions. When we come to the use of historic ornament we must be still more careful. It is a common frailty of the designer to use a bit or a great deal of historic ornament on some

building whose structural style is absolutely foreign to the period of the ornament, and thereby hope to give character and individual expression to his building. How often we see this in the sky-scraper of today, the most unarchitectural creation of our age. The harmony of detail and the bare organic structure should be complete. It is not the outward form of a building always that determines its style, but often the plan alone. Now where the plan is the index of the style, all the forms and detail appropriate to that style may be logically used. But it is certainly illogical, to say the least, to clothe a building which in its structural scheme is related to one style, with detail that properly belongs to an entirely different style. Thus a building erected in the structural form of the Basilica of Constantine is Roman, and it would be absurd to clothe it with Gothic detail and ornament.

### 3. History.

This part of the training of the architect has already been touched upon in the reference to archaeology in connection with design. The study of history is, however, a very essential part of academic training. By this is meant history in its broadest sense. For the architect history would divide itself into two kinds: first, architectural history and archaeology, and, second, social history. The first is specific and professional, while the latter is general. Now the aim of the study of architectural history is to "trace the origin, growth and decline of the architectural styles and to show how they have reflected the great movements of civilization, to familiarize the student with the masterpieces of architecture, and to cultivate a taste for and appreciation of the good in modern as well as in ancient work."

It further includes the study of the more important monuments of the past, an examination of their historic and social influences, and the tracing of the evolution of constructive principles. Through an endeavor to understand all the conditions and influences that produced the individual styles of the past, the student will learn to appreciate their significance and relation to our own life. He will find many sources of inspira-

tion and stimulation to his imagination. Architectural history may be divided again into two kinds. On the one hand there is the history of ornament, decoration and detail, and on the other hand we have the history of construction and structural forms. Of course, besides these, there is the study of historic examples. A complete and thorough knowledge of each of these can not be expected in a school course. The essential thing for the student is to have catalogued in his mind the various types and styles of ornament and construction, as well as the historic examples, of each, so that he may know where to find them if he should have use for them in his work. In other words, he should become very familiar with all the literature upon architectural subjects. If then he meets a problem of a certain type where more or less analogous to those of some historic example he will at once know where to find this example and can study it to profit by this past experience. This is one of the reasons why much time should be spent in the architectural library, the student becoming thoroughly familiar with the great works upon the monuments of the past.

The other branch of history would concern itself with political, social and intellectual evolution of mankind. It would also include the arts of sculpture and painting. This study will give the student broad cultural and aesthetic training which cannot be overestimated. To understand the art of any people a general knowledge of the evolution of their civilization is necessary. It will be noticed that the ages of the highest architectural achievement have also been the ages of the highest civilization. And this is but natural, for, as "art is man's comment upon life," when that life reached its culmination, art must have reached its highest expression. This field is broad and includes a history of philosophy, religion, government, and social life. There should therefore be introduced into the curriculum of academic training a course in which these subjects are surveyed in a brief but consistent manner.

However, with this alone the cultural education of the architect would not be complete. Of no less importance is the study of those sciences most closely related to architecture. Such should be chemistry, physics, sanitary science, public health, and acoustics. Of course it is hardly necessary to add

those general academic studies which form a part of the general education of every man. I mean English, mathematics, political institutions, and languages, except that, in the latter case, stress should be laid on the study of languages in which the greatest amount of architectural literature is written. French is perhaps the most important, for it is to France that we most generally turn for information in the lore of architecture. German would follow, as much valuable original literature is written in this language.

#### 4. Construction and Practice

As it was stated that solidity and soundness were among the fundamental principles of architecture, it is clear that some knowledge of the principles of structural engineering is imperative. However, as there is a specialization in this subject to-day on account of the complexity and magnitude of the problems involved, the knowledge of the architect need only be general and elementary. His specialized knowledge should exceed that of the ancient architect, because the universal use of new material has widened the scope of his work far beyond mere masonry structures. There are, further, two pertinent reasons why the architect should have a general and elementary knowledge of the principles of engineering and materials. First, because such knowledge will show him new possibilities for the disposition of his ideas. Through a knowledge of the nature of his materials he will be able to create new forms and acquire greater freedom in the distribution of his structural skeleton. With the development of new materials things are possible of which previous ages never dared to dream. Secondly, the knowledge of the fundamental principles of the strength of materials, and statics of building construction will enable him to solve many problems daily arising in the practice of his profession, and all this is of economic value to him. He will be able to solve smaller engineering problems without having to call in the aid of the expert engineer. He should not be allowed to rely on the many handbooks and other sources of information, without having some knowledge of the principles upon which they are based. Nor should this general education be confined merely to the principles of building construction. Owing to

the complexity of modern life many other questions arise which he should be able to answer. Even though he should not be able to pass final judgment upon them, he should have sufficient knowledge of their requirements and particular nature as to co-operate intelligently and sympathetically with those experts whom he finds necessary to call to his aid. There should thus be a general knowledge of the principles of heating and ventilation, of sanitary engineering and plumbing, of electric lighting, etc. These things are common to all buildings and therefore will be a constant part of the architect's practice. Of course knowledge of special installations and equipment cannot be expected to be acquired in an academic course. This must be obtained in actual practice. Whatever the conditions and nature of the problem, there should be an intelligent understanding and mutual sympathy between the architect and the specialists and experts which are to assist him.

Under the term practice are considered actual working methods as current in the architect's office. This is no small field in itself. It should include a knowledge of working or contract drawings, specifications, business relations, business law, and professional ethics. But instruction in these can only be very general and elementary, for in the actual world of practice the variety of methods is extreme. Each office will have its own system of practice, and therefore the beginner can at best start his office career only as a student. It is therefore advisable for the student to go into an office as soon as possible after he has commenced his studies of architecture. This he can do in the summer vacation. Such practice will have the further value of giving him a better insight into the significance of his school work, and enable him upon graduation to assume a higher position. His point of view will have broadened, and he will know better what to search for in the solution of his problems.

In general it might be said that this part of the training in our schools is too much neglected. We wish to make practical men as well as artists. Above all, we should save students from designing unbuildable buildings.

There are still several points that deserve consideration. One is the matter of academic environment. Scientific schools have their laboratories vast and complex, equipped with all the

instruments and paraphernalia of science necessary in the prosecution of the work of experiment and research and for arousing the interest of the student in his work. Naturally the better and more comprehensive the equipment the greater is the work accomplished. Now, the architect needs all this material equipment just as imperatively as the scientist, but he needs something more, he needs a spirit, an atmosphere which will work on his spiritual and emotional nature. It is this atmosphere and tradition which, when once created, will become the life and motive principle in the perpetuation of the school. This is a very illusive thing and depends on many factors, chief among which are the personality of the teachers, the methods of management of the school, the style of arrangement and equipment of the school, and the spirit of its ideals. On entering the apartments the student should instinctively feel that he is walking in an atmosphere of art; upon its walls he should find constant sources of inspiration; in the library he should be able to lose himself in the glories of the past; and in the museum he should find constant pleasure and stimulation. Life there should be made a passion and the work an envious pleasure and pride.

After all, the art life is only begun when the pleasures and vicissitudes of academic training are over. The years spent at school are really only an introduction into this new life, this other world. And when the last problem is handed in the student begins to realize that he is a mere infant and has only begun to crawl out of chaos toward the light. When his training is finished and he looks back he first begins to see what it was all about and that he is in the position of one who has just passed his entrance requirements. In the world of art study never ends, our work is really never finished, the last word is never spoken. I therefore believe that the time devoted to the training of architects in our schools is far too short. As a matter of fact, the setting of a time limit of four or five years for the completion of a prescribed course which is intended to produce an artist as certified by a diploma, is to say the least, extremely illogical. No account is taken of the personality of the student. The very fact that genius and talent are developed to varying extents in different students would seem to indicate that an equal measure of time is not only illogical but

unjust. It is therefore gratifying to see that one of our greatest schools has bravely cast off this inconsistency, and issues a diploma only when the student has finished a prescribed amount of work of a certain standard, no matter whether it took the student four years or ten years to accomplish it. This preserves the integrity of the diploma and insures a far more uniform quality of professional men. At any rate, where this is found inadvisable at present, it would seem that there ought to be more time given to this training. Instead of four years, six would be far better. Owing to the extreme broadness and complexity of this profession, the purely professional studies should be preceded by two years of general academic and cultural education. This might include entrance requirements, but whether or not, the student should be prepared for his professional work (which should be concentrated at the end of his course) by a sound cultural education. Prof. Charles Waldstein speaking of general education for artists says, "What this training is to give him is a general education; it is to make him a truly refined and educated man, who stands on the height of civilization of his age, and is representative of this in his way, as the man of letters and science, the statesman and legislator, are in theirs. I wish to impress the necessity—especially for artists—of an adequate general education, preparatory to his serious professional work." When all our institutions have awakened to their full responsibility in architectural education, we may hope for the day when architecture will resume its integrity as an art as it was left by the Gothic builders. Let us hope that it will be "born again," clothed in new raiment and fraught with a new life and a new spirit. Let our age erect unto itself a monument even more imperishable than the great Pyramid of Cheops.



# THE UNIVERSITY OF TEXAS BULLETIN.

(Continued from inside front cover)

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2. *The Evolution of "Causa" in the Contractual Obligations of the Civil Law*, by Samuel Peterson. 24 p. January, 1905. 25 cents.
3. *De Witt's Colony*, by Ethel Z. Rather. 99 p., 4 maps. 1905. 35 cents.
5. *The Grotesque in the Poetry of Robert Browning*, by Lily B. Campbell. 41 p. April, 1907. 25 cents.
6. *The Beginnings of Texas*, by R. C. Clark. 94 p., map. December, 1907. 75 cents.
7. *Railroad Transportation in Texas*, by C. S. Potts. 214 p., 6 maps, charts. March, 1909. \$1.50.

## MEDICAL SERIES

1. *Yellow Fever; a Popular Lecture*, by James Carroll. 32 p. June, 1905. 15 cents.
2. *The Care of the Insane*, by Dr. M. L. Graves. 16 p. 1905. 15 cents.
3. *The 1903 Epidemic of Yellow Fever in Texas and the Lessons to Be Learned from it*, by Dr. G. R. Tabor. 22 p. June, 1905. 15 cents.

## SCIENTIFIC SERIES

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8. *The Protection of Our Native Birds*, by T. H. Montgomery, Jr. 30 p. October, 1906. 25 cents.
9. *The Austin Electric Railway System*, by members of the Senior Class in Electrical Engineering, 1906. 123 p., illus. pl. 1906. 50 cents.
10. *Distribution and Adaptation of the Vegetation of Texas*, by W. L. Bray, 108 p., pl. map. November, 1906. 35 cents.
11. *A Sketch of the Geology of the Chisos Country*, by J. A. Udden. 101 p. April, 1907. 50 cents.
12. *The Clays of Texas*, by Heinrich Ries, 316 p., illus. pl. 1908. \$2.00.
13. *The American Mistletoe*, by H. H. York. 31 p., pl. 1909. 50 cents.
14. *Symptoms of Disease in Plants*, by F. D. Heald. Illus. November, 1909. \$1.00.
15. *Field Studies of the Behavior of the Lizard Sceloporus Floridanus*, by H. H. Newman and J. Thomas Patterson. 23 p., illus. December, 1909. 25 cents.

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The attention of students and teachers is called to the Department of Extension created in 1909 by the Board of Regents. The object of this Department is to extend, as far as possible, the advantages of the University to persons who desire to avail themselves of its services while living away from the University. Owing to lack of funds, the Board was able to provide for only a modest beginning; nevertheless, it is hoped that many who are unable to take up work in residence will avail themselves of the opportunity now presented to profit by University instruction while remaining at home.

The work of the Department of Extension is being conducted in three divisions.

- I. Correspondence Division.
- II. Public Discussion and Information Division.
- III. Lecture Division.

In the Correspondence Division, many University courses are offered by mail, and it is now possible for the student to do half of the work required for the B. A. degree and a third of the work required for the degree of Bachelor of Laws, while living at home.

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